

What is Claimed is:

1. A gas desulfurization scrubbing system comprising:

a scrubbing tower having a scrubbing chamber where a scrubbing slurry contacts a gas to remove sulfur oxides therefrom and produces a slurry reaction product, a tower collection section below said scrubbing chamber for collecting the slurry reaction product for combining with an alkaline slurry to form the scrubbing slurry, and a gas discharge duct above said scrubbing chamber;

a gas duct for delivering a gas through an inlet to the side of the scrubbing tower situated between said scrubbing chamber and said tower collection section;

a quench section in said gas duct for contact of the gas with a portion of the scrubbing slurry; and

a gas duct collection section in said gas duct, between said quench section and the inlet to the scrubbing tower, for collection of at least a portion of a quench reaction product resulting from contact of said portion of the scrubbing slurry with the gas.

2. The gas desulfurization scrubbing system of Claim 1, further comprising

an oxidizer for use in processing the quench reaction product, and

means for conveying the quench reaction product from said gas duct collection section to said oxidizer.

3. The gas desulfurization scrubbing system of Claim 2, further comprising means for conveying quench reaction product collected in said gas duct collection section, and not conveyed to said oxidizer, to said tower collection section.

4. The gas desulfurization scrubbing system of Claim 1, further comprising an alkaline slurry tank for preparing the alkaline slurry, and means for conveying the alkaline slurry to the tower collection section.

5. The gas desulfurization scrubbing system of Claim 2, wherein said gas duct collection section includes a trough in a lower wall of said gas duct wherein quench reaction product collects by gravity alone, and said trough includes an overflow portion for directing the quench reaction product, not conveyed to said oxidizer, to said tower collection section.

6. The gas desulfurization system of Claim 1 wherein the gas is a flue gas from a combustion system.

7. The gas desulfurization system of Claim 1 wherein the gas is a sulfur-containing gas resulting from manufacture of brick in a brick kiln.

8. A gas desulfurization scrubbing system comprising:  
a scrubbing tower having a scrubbing chamber where a scrubbing slurry contacts a gas to remove sulfur oxides therefrom and produces a slurry reaction product, a tower collection section below said scrubbing chamber for collecting the slurry reaction product for combining with an

alkaline slurry to form the scrubbing slurry, and a gas discharge duct above said scrubbing chamber;

a gas duct for delivering a gas through an inlet to the side of the scrubbing tower situated between said scrubbing chamber and said tower collection section;

a quench section in said gas duct for contact of the gas with a portion of the scrubbing slurry;

a gas duct collection section in said gas duct, between said quench section and the inlet to the scrubbing tower, for collection of at least a portion of a quench reaction product resulting from contact of said portion of the scrubbing slurry with the gas;

an oxidizer for use in processing the quench reaction product; and

means for conveying the quench reaction product from said gas duct collection section to said oxidizer; wherein

said gas duct collection section includes a trough in a lower wall of said gas duct wherein quench reaction product collects by gravity alone, and said trough includes an overflow portion for directing the quench reaction product, not conveyed to said oxidizer, to said tower collection section.

9. The gas desulfurization system of Claim 8 wherein the gas is a flue gas from a combustion system.

10. The gas desulfurization system of Claim 8 wherein the gas is a sulfur-containing gas resulting from manufacture of brick in a brick kiln.